



PTO/SB/08A (10-01)

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Substitute for form 1449A/PTO				Complete if Known	
				Application Number	10/023259
				Filing Date	December 14, 2001
				First Named Inventor	Jung-Hwan Park
				Art Unit	3763
				Examiner Name	Not Yet Assigned
Sheet	1	of	4	Attorney Docket Number	BVTP-P01-590

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)	MM-DD-YYYY		
KCS	AA	RE 25,637	09-08-1964	Kravitz et al.	

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)	MM-DD-YYYY		
	AB	EP 0497620	05-08-1992	Carnegie-Mellon University	
	AC	EP 0652600	05-10-1995	Matsushita Electric Ind. Co.	
	AD	JP 7132119	05-23-1995	Nikon Corp.	
	AE	JP 7196314	08-01-1995	Maruo Calcium Co., Ltd.	
	AF	WO 93/17754	09-16-1993	Gross et al.	
	AG	WO 96/37256	11-28-1996	Godshall	
	AH	WO 96/40365	12-19-1996	Alza Corporation	
	AI	WO 96/41236	12-19-1996	Regents of the Univ. of CA	
	AJ	WO 97/07734	03-06-1997	Spectrx, Inc.	
	AK	WO 98/00193	01-08-1998	Altea Technologies, Inc.	
	AL	WO 98/00194	01-08-1998	Sontra Medical L.P.	
	AM	WO 98/28037	07-02-1998	Alza Corporation	
	AN	WO 00/35530	06-22-2000	Minimed, Inc.	
	AO	WO 00/48669	08-24-2000	Biovalve Technologies, Inc.	
	AP	WO 00/74763	12-14-2000	Georgia Tech Research Corp.	

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¹ Applicant's unique citation designation number (optional). ² See attached Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS					
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.			T ²
	AQ	Abrams, S.B. Versatile biosensor is compact and cheap. Biophotonics International 32-34 (Jan/FEB 1998).			
	AR	Amsden, B.G. and Goosen, M.F.A. Transdermal Delivery of Peptide and Protein Drugs: an Overview. AIChE J. 41, 1972-1977 (Aug. 1995).			
	AS	Brumlik, C.J. and Martin, C.R. Template Synthesis of Metal Microtubules. J. Am. Chem. Soc. 113, 3174-3175 (1991).			
↓	AT	Chun, K. et al. Fabrication of Array of Hollow Microcapillaries Used for Injection of Genetic Materials into Animal/Plant Cells. Jpn. J. Appl. Phys. 38, 279-281 (1999).			

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<i>KCS</i>	AU	Clarke, M.S.F. and McNeil, P.L. Syringe loading introduces macromolecules into living mammalian cell cytosol. J. Cell. Sci. 102, 533-541 (1992).	
	AV	Despont, M. et al. High-Aspect-Ratio, Ultrathick, Negative-Tone Near-UV Photoresist for Mems Applications. IEEE 0-7803-3744-1/97 (1997).	
	AW	Edell, D.J. et al. Factors Influencing the Biocompatibility of Insertable Silicon Microshafts in Cerebral Cortex. IEEE Transactions on Biomedical Engineering 39, 635-643 (1992).	
	AX	Eleventh Annual International Workshop on Micro Electro Mechanical Systems, Heidelberg, Germany (25-29 Jan. 1998). IEEE Catalog No. 98CH36176	
	AY	Frazier, A.B. and Allen, M.G. Metallic Microstructures Fabricated Using Photosensitive Polyimide Electroplating Molds. J. Microelectromechanical Systems 2, 87-94 (June 1993).	
	AZ	Frazier, A.B. et al. Two Dimensional Metallic Microelectrode Arrays for Extracellular Stimulation and Recording of Neurons. IEEE 0-7803-0957 pp. 195-200 (Feb. 1993).	
	BA	Griss, P. et al. Micromachined Electrodes for Biopotential Measurements. J. Microelectromechanical Systems 10, 10-16 (March 2001).	
	BB	Haga et al. Transdermal Iontophoretic delivery of insulin using a photoetched microdevice. J. Controlled Release 43, 139-149 (1997).	
	BC	Hashmi, S. et al. Genetic Transformation of Nematodes Using Arrays of Micromechanical Piercing Structures. BioTechniques 19, 766-770 (Nov. 1995).	
	BD	Henry, S. et al. Micromachined Needles: A Novel Approach to Transdermal Drug Delivery. J. Pharm. Sci. 87, 922-925 (Aug. 1998).	
	BE	Henry et al. Microfabricated Microneedles: A Novel Method to Increase Transdermal Drug Delivery. J. Pharm. Sci. 87, 922-925 (1998).	
	BF	Hoffert, S.P. Transcutaneous Methods Get Under the Skin. The Scientist 12, no. 16 (17 Aug. 1998).	
	BG	Infiltrator Intramural Drug Delivery: A New Generation of Drug Delivery Catheters from InterVentional Technologies, Inc., San Diego, CA (1997).	
	BH	Jaeger, R.C. Introduction to Microelectronic Fabrication in the Addison-Wesley Modular Series on Solid State Devices, G.W. Neudeck and R.F. Pierret, eds. Vol. 5, Addison-Wesley Publishing Co., Inc. (May 1993).	
	BI	Jansen, H. et al. The Black Silicon Method IV: The Fabrication of Three-Dimensional Structures in Silicon with High Aspect Ratios for Scanning Probe Microscopy and Other Applications. MESA Res. Int, University of Twente, The Netherlands.	

Examiner Signature	<i>5/16/04</i>	Date Considered	
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<i>KCS</i>	BJ	Laermer, F. et al. Bosch Deep Silicon Etching: Improving Uniformity and Etch Rate for Advanced MEMS Application. IEEE Catalog No. 99CH36291C, ISBN: 0-7803-5194-0 from the Twelfth IEEE International Conference on Micro Electro Mechanical Systems, Orlando FL, (17-21 Jan. 1999).
	BK	Langer, R. Drug delivery and targeting. Nature 392 Supp, 5-10 (30 April 1998).
	BL	Lehmann, V. Porous Silicon – A New Material for MEMS. IEEE ISBN: 0-7803-2985-6/96 (1996).
	BM	Lin, L. et al. Silicon Processed Microneedles. The 7 th International Conference on Solid-State Sensors and Actuators (1993).
	BN	Martin, C.R. et al. Template Synthesis of Organic Microtubules. J. Am. Chem. Soc. 112, 8976-8977 (1990).
	BO	Najafi, K. and Hetke, J.F. Strength Characterization of Silicon Microprobes in Neurophysiological Tissues. IEEE Transactions on Biomedical Engineering 37, 474-481 (May 1990).
	BP	101 Uses for Tiny Tubules. Science 247 (23 March 1990).
	BQ	Percutaneous Absorption, R.L. Bronaugh and H.I. Maibach, eds. Marcel Dekker, Inc., New York (1989).
	BR	Prausnitz, M.R. Reversible Skin Permeabilization for Transdermal Delivery of Macromolecules. Critical Reviews in Therapeutic Drug Carrier Systems 14, 455-483 (1997).
	BS	Quan, M. Plasma etch yields microneedle arrays. Electronic Eng. Times, p.63 (13 July 1996).
	BT	Reiss, S.M. Glucose- and Blood-Monitoring Systems Vie for Top Spot. Biophotonics International p. 43-46 (May/June 1997).
	BU	Runyan, W.R. and Bean, K.E. Semiconductor Integrated Circuit Processing Technology, Addison-Wesley Publishing Co. (1990).
	BV	Schift, H. et al. Fabrication of replicated high precision insert elements for micro-optical bench arrangements. SPIE Vol. 3513, p.122-134 from SPIE Conference on Microelectronic Structures and MEMS for Optical Processing IV, Santa Clara (Sept. 1998).
	BW	Single-crystal whiskers. Biophotonics Int'l, p. 64 (Nov./Dec. 1996).
	BX	Talbot, N.H. and Pisano, A.P. Polymolding: Two Wafer Polysilicon Micromolding of Closed-Flow Passages for Microneedles and Microfluidic Devices. Solid-State Sensor and Actuator Workshop, Hilton Head Island, SC (8-11 June 1998).
<i>✓</i>	BY	Transdermal Drug Delivery, J. Hadgraft and R.H. Guy, eds. Marcel Dekker, Inc., New York (1989).

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KCS	BZ	Trimmer, W. et al. Injection of DNA into Plant and Animal Tissues with Micromechanical Piercing Structures. IEEE Catalog No. 95CH35754, ISBN: 0-7803-2503-6 from Micro Electro Mechanical Systems, Amsterdam p. 111-115 (1995).	
↓	CA	Weber, L. et al. Micro molding – a powerful tool for the large scale production of precise microstructures. SPIE No. 0-8194-2277-0/96, Vol. 2879, p.156-167 (1996).	
↓	CB	Zuska, P. Microtechnology Opens Doors to the Universe of Small Space. MD&DI (1997).	

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